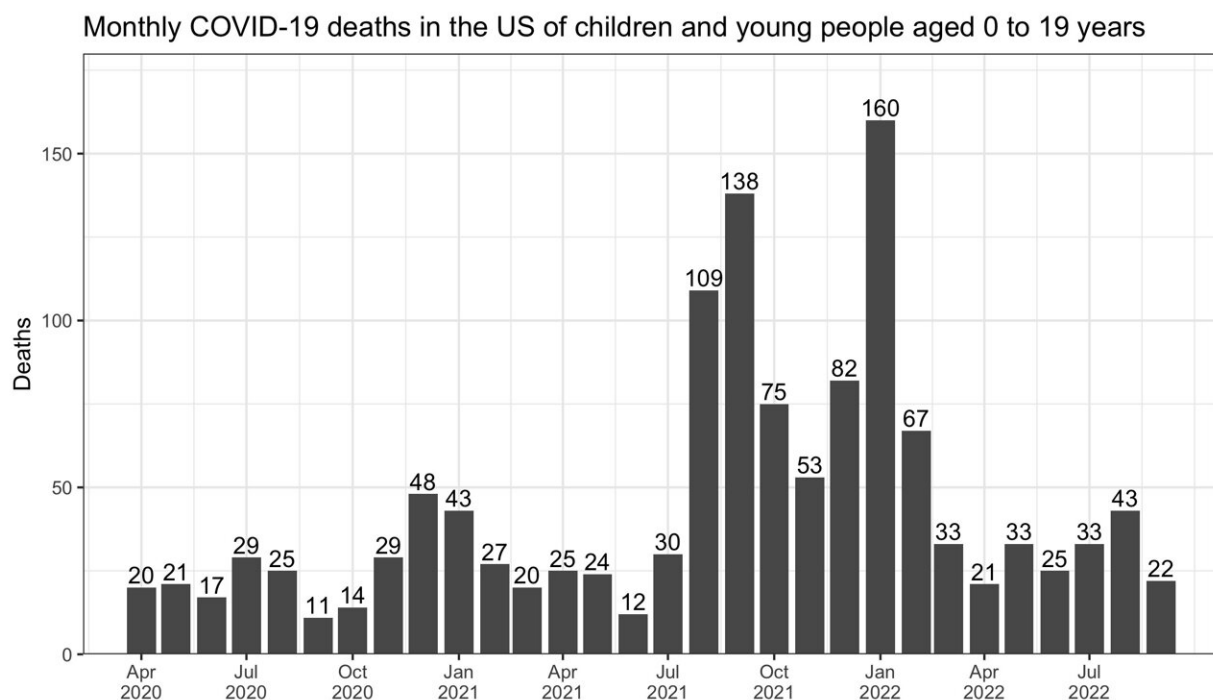


COVID-19 is a leading cause of death in children and young people in the United States

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Monthly number of deaths in the US of children and young people (aged 0-19), where COVID-19 was listed as the cause of death on the death certificate. Image credit: Flaxman et al. JAMA Network Open. Credit: Monthly number of deaths in the US of children and young people (aged 0-19), where COVID-19 was listed as the cause of death on the death certificate. Credit: *JAMA Network Open* (2023). DOI: 10.1001/jamanetworkopen.2022.53590

COVID-19 was the underlying cause of death for more than 940,000 people in the US, including over 1,300 deaths among children and young people aged 0–19 years. Until now, it had been unclear how the burden of deaths from COVID-19 compared with other leading causes of deaths in this age group.

A new study led by researchers at the University of Oxford's Department of Computer Science investigated this using data from US Centers for Disease Control and Prevention databases. The results are published today in the journal *JAMA Network Open*.

Key findings for the study period 1 August 2021 to 31 July 2022:

- Among children and [young people](#) aged 0—19 years in the US, COVID-19 ranked eighth among all causes of [death](#); fifth among all disease-related causes of death; and first in deaths caused by infectious or respiratory diseases.
- By age group, COVID-19 ranked seventh (infants), seventh (1–4 year olds), sixth (5–9 year olds), sixth (10–14 year olds), and fifth (15–19 year olds).
- COVID-19 was the underlying cause for 2% of deaths in children and young people (800 out of 43,000), with an overall death rate of 1.0 per 100,000 of the population aged 0–19. The leading cause of death (perinatal conditions) had an overall death rate of 12.7 per 100,000; COVID-19 ranked ahead of influenza and pneumonia, which together had a death rate of 0.6 per 100,000.
- Like many diseases, COVID-19 death rates followed a U-shaped pattern across this age-range. COVID-19 death rates were highest in infants aged less than one year (4.3 per 100,000), second highest in those aged 15–19 years (1.8 per 100,000), and lowest

- in children aged 5 –9 years (0.4 per 100,000).
- Overall, deaths in children and young people were higher during the Delta and Omicron waves compared to previous waves (pre-July 2021), likely reflecting the higher numbers infected during these periods. Nevertheless, in the pre-Delta period of the pandemic, COVID-19 still ranked as the ninth leading cause of death overall.
 - The month with the highest number of COVID-19 related deaths in 0—19 year-olds was January 2022 at 160.

Although COVID-19 amplifies the impacts of other diseases (such as pneumonia and influenza), this study focuses on deaths that were directly caused by COVID-19, rather than those where COVID-19 was a contributing cause. Therefore, it is likely that these results understate the true burden of COVID-19 related deaths in this age-group.

Compared with other age-groups, the overall risk of death from COVID-19 was substantially lower in children and young people. For instance, between 1 August 2021 and 31 July 2022, the COVID-19 death rate among all ages in the US was 109 per 100,000. However, because deaths among children and young people in the US are rare, the mortality burden of COVID-19 is best understood in the context of all other causes of death in this age-group.

According to the researchers, these results suggest that, with variants of COVID-19 continuing to circulate, public health measures such as vaccinations, staying home when sick, and ventilation still have an important role to play in limiting transmission of the virus and mitigating [severe disease](#) in children and young people.

Associate Professor Seth Flaxman (Department of Computer Science, University of Oxford), lead author of the study, said, "These results demonstrate that while it's rare for kids and teens to die in the US,

COVID-19 is now the leading underlying cause of death from infectious disease for this age group."

"Many of the 82 million American children and young people were infected during the big Delta and Omicron waves, and as a result more than 1,300 children and young people have died from COVID-19 during the pandemic, most in the last two years. Fortunately, we now have an array of effective tools to minimize risk, from building ventilation to air purifiers to safe vaccines. Working together, communities can significantly limit the extent of infection and severe disease."

Assistant Professor Robbie M. Parks of Mailman School of Public Health, Columbia University, a co-author of the study, said, "If you look at infectious diseases in children in the US historically, in the period before vaccines became available, hepatitis A, rotavirus, rubella, and measles were all major causes of death."

"But when we compared those diseases to COVID-19, we found that COVID-19 caused substantially more deaths in children and young people than those other diseases did before vaccines became available; this demonstrates how seriously we need to take COVID-19 prevention and mitigation measures for the youngest age groups in the US and worldwide."

Associate Professor Deepti Gurdasani, Kirby Institute, University of New South Wales, Sydney, a fellow co-author of the study, said, "It's clear that COVID-19 is a significant cause of death in children, being the leading cause of death from infectious disease. Unfortunately, deaths from COVID-19 have continued to be significant in children, even during the Omicron era."

"We need mitigations (e.g., ventilation, air cleaning) to protect children from infection, alongside accessible vaccination to reduce the risk from

severe disease."

Co-author Dr. Oliver Ratmann, from the Department of Mathematics at Imperial College London, said, "The central point of this study is that in children, the severity of COVID-19 infection is best understood by comparing like for like, i.e. relative to other causes of death in children. We show that COVID-19 was a top-ten leading cause of death in children in 2021-22 and the leading cause of death in children from any infectious [disease](#). So, COVID-19 is far from a harmless infection in [children](#)."

More information: Assessment of COVID-19 as the underlying cause of death among children and young people aged 0 to 19 years in the US., *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2022.53590](#)

Provided by University of Oxford

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